FACT SHEET

Aberdeen Chemical Agent Disposal Facility: Accelerated Disposal

After the Sept. 11, 2001, terrorist attacks, the U.S. Army began evaluating additional methods to reduce the public risk associated with chemical stockpile storage, including methods to accelerate stockpile destruction.

In January 2002, the Army announced plans to accelerate the destruction of the mustard agent stockpile located at Aberdeen Proving Ground in Maryland, recognizing that complete destruction of the stockpile offers the best security and permanent protection to the public. The Army worked closely with officials and regulators from the Maryland Department of the Environment and the U.S. Environmental Protection Agency (EPA) to determine the safest and most effective way to accelerate the destruction of the bulk mustard agent stockpile. The resulting plan was approved by environmental regulators and endorsed by the Maryland Citizens' Advisory Commission and federal, state and local officials. Community input on the resulting plan also was considered.

An Army acquisition decision memorandum signed by Under Secretary of Defense for Acquisition, Technology and Logistics E.C. "Pete" Aldridge on Feb. 1, 2002, officially signaled the start of the accelerated disposal project. A Phase I Consent Agreement governing construction of the accelerated facility was signed between the Maryland Department of the Environment and Aberdeen Proving Ground. In addition, a Class 1 Permit Modification from EPA Region III and the Record of Environmental Consideration for construction were signed.

General Process Comparison

Accelerating the destruction of the stockpile involves the same neutralization technology and much of the same equipment approved for use in the original Aberdeen Chemical Agent Disposal Facility. The accelerated plan simplifies the original process and reorders its sequence to destroy the mustard agent first, thereby reducing the risk to Maryland citizens more than two years earlier than previously scheduled. It differs from the original process in four main steps: container draining; agent destruction and confirmation; disposal of the neutralization by-product or "hydrolysate;" and container decontamination and disposal.

Step 1: Container Draining

Workers drain the mustard agent from the steel containers by manually removing the containers' plugs through a glove box system that has been used safely by the Army for agent handling for more than 10 years. A tube is inserted and the agent is pumped to an agent holding tank.

Step 2: Agent Destruction and Confirmation

The mustard agent is fed into a tank containing hot water where it is vigorously mixed, causing the mustard agent to react with the water to form a biodegradable liquid byproduct called hydrolysate. The hydrolysate is a relatively benign liquid that is approximately 90 percent water with a mixture of salts, a chemical called thiodiglycol and possible minute traces of impurities such as copper and iron. Thiodiglycol, an organic chemical used in the paint and ink industry, is readily biodegradable. A large batch made up of four well-mixed, small batches is tested to confirm complete agent destruction.

Step 3: Hydrolysate Disposal

Although free of mustard agent, the hydrolysate still is considered an industrial hazardous waste and requires further treatment. This post-treatment step—where the hydrolysate is added to a mixture of ordinary sewage treatment bacteria that "digests" the thiodiglycol to form carbon dioxide and wet solids—will be accomplished at DuPont's Secure Environmental Treatment at Chambers Works in Deepwater, N.J.

For more information,
contact the
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By transporting the hydrolysate to a permitted off-site commercial facility that is well equipped to handle these kinds of wastes, the buildings and equipment designed for on-site hydrolysate biotreatment did not have to be built, nor will there be any discharge to the Bush River from this facility.

Step 4: Container Decontamination and Disposal

Under the original disposal plan, the steel containers would have been cut, rinsed and decontaminated right after draining the agent. The accelerated process calls for draining and neutralizing the agent first, then decontaminating and recycling the empty containers later. This approach provides the most immediate protection to the public by destroying the mustard agent contents of the container first, and then decontaminating all of the containers after the mustard agent is neutralized. The container parts will be monitored to ensure that no agent remains and will be shipped off-site for recycling.

Many authorities with extensive knowledge of the chemical demilitarization program, hazardous waste disposal, worker safety regulations and environmental protection continue to work closely with the Army to ensure that worker and public safety and environmental protection are the most important elements of this project.

If you would like more information on the accelerated mustard agent disposal project at Aberdeen Proving Ground, contact the staff at the Edgewood Chemical Stockpile Outreach Office at (410) 676-6800, the ABCDF Public Affairs Specialist at (410) 436-5253 or Bechtel Aberdeen's Public Outreach Manager at (410) 436-9507. Also, you may visit our Web site at www.cma.army.mil.